REMARKS

Claims 1-30 are now pending in the application. Claims 23-30 are newly filed claims for examination.

With respect to the claim objections regarding claims 1 and 15, claim 1 is now amended to correct the typographic error with respect to the expression "equalize". With respect to claim 15, this claim is now amended to replace the ending, semicolon with a period. Accordingly, the cited claim objections are now corrected and the Examiner is requested to withdraw the objection.

With respect to claim rejections, claims 6, 14 and 20 were rejected under 35 U.S.C. § 112, second paragraph.

Regarding claim 6, which was originally dependent on claim 4, claim 6 is now amended to depend from claim 5 which includes the antecedent basis for the limitation "said predetermined region".

With respect to claim 14, which originally depended from claim 12, claim 14 is now amended to depend from claim 13 which includes the antecedent basis for "the first and second diodes".

With respect to claim 20, which originally depended from claim 18, claim 20 is now amended to depend from claim 19 which includes the antecedent bases for the limitation "said predetermined region".

It is respectfully submitted that the claim rejections under 35 U.S.C. § 112 are now overcome and the Examiner is respectfully requested to withdraw the rejections.

Claim 1-11 and 13-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Publication No. US 2002/0117622 A1. This rejection is traversed for the following reason.

Claims 1, 16 and 21 are independent claims including the feature that the heat generating amplifier and the electro-thermal feedback circuit includes a bipolar transistor integrated with the intermediate stage. In claims 1 and 16,

the heat generated by the bipolar transistor directly heats the intermediate stage in response to the temperature difference between the absorber element and the intermediate stage. In claim 21, the bipolar transistor directly heats the thermal isolation means in response to the temperature difference signal.

The Examiner alleges on page 4 of the Office Action, second paragraph, that with respect to the amplifier including a bipolar transistor, that while the reference cited has not specifically identified "the transistor in the amplifier as being a bipolar transistor, those skilled in the art appreciate that functionally equivalent transistors such as bipolar transistors or MOSFET transistors are widely known in the art for use in amplifier circuits and, absent some degree of criticality, the use of a bipolar transistor would have been an obvious design choice in view of the well known use thereof in amplifiers".

It is submitted that the position of the Examiner is based upon speculation. As noted in Ex Parte GPAC, Inc., 29 USPQ 2d, 1401, 1415 (BPAT 1993):

> The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention rests upon the Examiner. *In re Oetiker*, 977 F2d 24 USPQ 2nd 1443 (Fed.Cir. 1992). ... In rejecting a claim under 35 U.S.C. § 103, the Examiner must provide a *factual basis* to support the obviousness conclusion. *In re Warner*, 379 F2d 1011, 154 USPQ 173 (CCPA 1967).... Based on the objective evidence of the record, the Examiner is required to make the factual inquiries mandated by *Graham v. John Deere*, 383 US 1, 17, 148 USPQ 459, 469 (1966)... the Examiner is also required to explain why one having ordinary skill in the art would have been led to modify and/or combine the applied art to arrive at the claimed invention. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

Accordingly, a rejection based on 35 U.S.C. § 103 must rest on factual basis. The facts must be interpreted without hindsight reconstruction of the invention from the prior art. In making this evaluation, all facts must be considered and the Patent Office has the initial duty of supplying factual basis for the rejection. Accordingly, it may not because it may doubt that the invention is patentable to resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. See, for example, *In re Warner*, supra.

Further, in Applicant's specification at paragraph 0090, it states that

> "the amplifier 18 in the subject invention includes a bipolar transistor circuit 42 as shown in Figure 9 which not only amplifies and provides an output signal V_0, but its quiescent power consumption serves as a heater for the intermediate stage 16, thereby mechanizing the electrical-thermal feedback loop. This dual function is made possible by designing the amplifier circuit 18 including the bipolar transistor 42 to operate at equilibrium at a constant current I_H. Operating the amplifier is at a constant current I_H insures that the output voltage is not only a measure of the temperature difference between the detector 10 and intermediate stages, but also determines the thermal power Q_H delivered to the intermediate stage 16."

A single bipolar transistor 42 shown in Figure 9 of Applicant' s drawings in the subject application, is substituted for the two MOSFETs 42 and 44 shown in Figures 11 and 12 of the references publication. In other words, one device is taking the place of two.

The Examiner is therefore requested to reconsider his present position and withdraw the rejection under 35 U.S.C. § 103(a), rejecting independent claims 1, 16 and 21 and the respective dependent claims dependent therefrom.

The Examiner is therefore requested to reconsider his present position and withdraw the rejection under 35 U.S.C. § 103(a), rejecting independent claims 1, 16 and 21 and the respective dependent claims dependent therefrom.

Claim 23 is a new independent similar to claim 21 but is broader in scope by reciting that the antenna means is simply located on the heat bath means. Also, the electro-thermal feedback circuit simply includes heat generating amplifier means. Dependent claim 24 now locates the antenna means on an outer surface of the heat bath means. Dependent claim 25 is directed to a two-tier sensor assembly. Claim 26 is an independent claim essentially combining claims 1, 11 and 12, which was noted to be directed to allowable subject matter, with the exception that the bipolar transistor limitation is not included in the heat generating amplifier recited in claim 1. Dependent claim 27 now includes semiconductor amplifier means in the heat generating amplifier with claims 28 and 29 further defining the semiconductor amplifier means as comprising at least one semiconductor amplifying device and a transistor of a predetermined type integrated with the intermediate stage, respectively. Dependent claim 30 simply recites that the transistor comprises a bipolar transistor originally recited in independent claim 21.

Notwithstanding the Bluzer reference, it is respectfully submitted that new submitted claims 23-30 comprise allowable claims.

In view of the foregoing amendments and remarks, all the claims present in the application are deemed to be in condition for allowance and therefore further and favorable action is requested.

The Examiner is requested to contact the undersigned at (703) 205-8061 in the Washington D.C. area to discuss any matters which need to be addressed prior to issuing a Notice of Allowance in this application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

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Respectfully submitted,

By William L. Gates

William L. Gates
Registration No.: 20,848
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant